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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,474	06/30/2000	Chuanyou Dong	6009-035	2236

7590 07/08/2003

Law Office of John F Schipper
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EXAMINER

DO, CHAT C

ART UNIT	PAPER NUMBER
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2124

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,474

Applicant(s)

DONG, CHUANYOU

Examiner

Chat C. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Reconsideration, filed 6/9/03.
 2. Claims 1-15 are pending in this application. Claims 1, 6, and 11 are independent claims.
- This action is made final.

Claim Objections

3. Claims 1, 6, and 11 are objected to because of the following informalities: the term "LSB" in the claims must be rewritten as "least significant bit". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being obvious over Karanovic (U.S. 6,301,596) in view of Fling (U.S. 4,727,506).

Re claim 1, Karanovic discloses a method in Figure 1 for adjusting a noise floor (col. 5 lines 7-13) of a filtered signal (col. 1 lines 26-30) for low frequencies comprising: providing a digital signal having M bits (M in present invention = M+N in Karanovic invention) that has been digitally filtered wherein M is a selected positive number; adding

(40) the supplement signal to the M-bit filtered signal (22) to produce a modified filtered signal; and removing L LSB bits from the modified filtered signal to produce a dithered filtered signal where L is a selected positive number satisfying $L+1 \leq M$ (K and 50). Karanovic discloses a random number generator to add the filtered data (30 and col. 2 lines 51-55), but Karanovic does not disclose an Exclusive OR product of N LSB bits of the M-bit filtered signal to provide a one-bit supplement signal where N is a selected positive number that satisfying $N+1 \leq M$. However, Fling discloses in Figure 6 an Exclusive OR product of N LSB bits of the M-bit filtered signal (F_s) to provide a one-bit supplement signal (56). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to include an Exclusive OR product of N LSB bits of the M-bit filtered signal to provide a one-bit supplement signal in Karanovic's invention because it would help to induce a level shift in the output value.

Re claim 2, Karanovic further discloses M is 30 ($M+N = 30$).

Re claim 3, Karanovic further discloses N is 16 ($R = 16$).

Re claim 4, Karanovic further discloses L is in a range $1 \leq L \leq 16$ ($1 \leq M \leq 16$).

Re claim 5, Karanovic further discloses filtered signal is an FIR-filtered signal (col. 1 lines 26-30).

Re claim 6, it is a system claim of claim 1. Thus, claim 6 is also rejected under the same rationale in the rejection of the rejected claim 1.

Re claim 7, it is a system claim of claim 2. Thus, claim 7 is also rejected under the same rationale in the rejection of the rejected claim 2.

Re claim 8, it is a system claim of claim 3. Thus, claim 8 is also rejected under the same rationale in the rejection of the rejected claim 3.

Re claim 9, it is a system claim of claim 4. Thus, claim 9 is also rejected under the same rationale in the rejection of the rejected claim 4.

Re claim 10, it is a system claim of claim 5. Thus, claim 10 is also rejected under the same rationale in the rejection of the rejected claim 5.

Re claim 11, it is a article claim of claim 1. Thus, claim 11 is also rejected under the same rationale in the rejection of the rejected claim 1.

Re claim 12, it is a article claim of claim 2. Thus, claim 12 is also rejected under the same rationale in the rejection of the rejected claim 2.

Re claim 13, it is a article claim of claim 3. Thus, claim 13 is also rejected under the same rationale in the rejection of the rejected claim 3.

Re claim 14, it is a article claim of claim 4. Thus, claim 14 is also rejected under the same rationale in the rejection of the rejected claim 4.

Re claim 15, it is a article claim of claim 5. Thus, claim 15 is also rejected under the same rationale in the rejection of the rejected claim 5.

Response to Arguments

6. Applicant's arguments filed 6/9/2003 have been fully considered but they are not persuasive.

a. The applicant argues in pages 5-6 that
the invention of Karanovic in view of Fling can be derived mathematically as:

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$$AV(n) = C(n-1) \times IV(n-1) + \{OV(n-1;72) \oplus \dots \oplus OV(n-1;75) \oplus OV(n-1;76)\} + AV(n-1),$$

the present invention can be derived mathematically as:

$$AV(n) = C(n-1) \times IV(n-1) + \{AV(n-1;1) \oplus AV(n-1;2) \oplus \dots \oplus AV(n-1;N-1) \oplus AV(n-1;N)\}$$

Thus, the prior art reference is different from the present invention by the last term $\{AV(n-1;1) \dots AV(n-1;N)\}$.

The examiner respectfully submits the following replies corresponding to the above argument: First, the claims are not rejected under U.S.C. 103(a) based on mathematical expression of the present invention but rather the claims are rejected based on the claimed language in claims 1-15. Second, these mathematical expressions are not clearly cited in application or the patent. Therefore, the accuracy of these expressions is undetermined. For example in Figure 1 of the present invention, mathematically the output of summation of part 19 in Figure must include three input terms: output of 23, output of 21, and output of 15. However in the argued expression (equation 4), there are only three terms: $C(n-1)$, $IV(n-1)$, and $AV(n-1,1)$. Therefore, the rejections of claims 1-15 are still valid under U.S.C 103(a) as cited above along with the reply.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Chat C. Do
Examiner
Art Unit 2124

July 1, 2003



**CHUONG DINH NGO
PRIMARY EXAMINER**